GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF ENERGY, MINES AND RESOURCES

LEGEND FOR SURFICIAL GEOLOGY
OF
KNEE LAKE (53 M)
MANITOBA

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1974

GEOLOGIC MAP UNIT	MATERIAL	LANDFORM		ASSUMED THICKNESS (range in feet)	ORGANIC DEPOSITS AND PERMAFROST	GENERAL COMMENTS
		ORIGIN	TOPOGRAPHY			
SFn(c)	Sand, silt and gravel	Proglacial outwash	Broad knoll or series of knolls from 10 to 50 feet above adjacent terrain	10 to 50	Generally thin or absent	Good source of fine to coarse aggregate
(S,G) Ft(k,c)		Proglacial outwash terrace	Gently irregular, channelled (c) or pitted (k) surfaces with up to 50 feet of local relief			
SFv		Proglacial outwash	Surface reflects topography of underlying material	0 to 10		Generally poor source of aggregate; some sand and gravel may be obtained locally
CLv	Clay and silt	Glacial lake	Surface reflects topography of underlying material; local relief is from 5 to 25 feet		Bog and fen form a nearly continuous cover over the plains, here and there it is broken by bedrock outcrops; bog is generally 2 to 9 feet thick and permafrost occurs at 1 to 4 foot depth	The lacustrine veneer in this area was deposited in shallow short-lived glacial lakes and is confined to the low areas between drumlins and bedrock knolls; the larger, longer lasting glacial lakes that covered areas to the west and northwest did not extend into this area
(S,G)I (h,n,r,k)	Sand and gravel	Ice-contact outwash, mostly kames and eskers	Ridges and knolls that occur as isolated landforms or as broad, pitted rises along trends continuous for tens of miles; local relief ranges from 10 to 100 feet	10 to 100	Generally thin or absent	Good source of mainly sand and some gravel
TM(p,d,e)	Sandy till high in igneous rock detritus	Ground moraine	Gently irregular or broadly rolling till plains with 5 to 25 feet of local relief; includes areas of drumlins or drumloids in part eroded by lake water	0 to 50	Bog and fen form a nearly continuous cover over the plains or in low areas between drumlins and bedrock knolls; bog is 2 to 9 feet thick and permafrost occurs at 1 to 4 foot depth	Till is mostly a mixture of fairly loose silt, sand and gravel, particularly on the eroded drumlin crests
TMv(e)			Surface reflects topography of underlying material	0 to 10		
Rnp	Precambrian bedrock	Topography developed by Preglacial and glacial erosion	Mostly areas of knolls (n) with 15 to 50 feet relief; some gently irregular areas (p) in part veneered with drift	not applicable	Bog and fen cover low areas between knolls and bedrock outcrops; bog is 2 to 9 feet thick and permafrost occurs at 1 to 4 foot depth beyond the bog margins	Bedrock exposures are discontinuous and patchy

TEXTURAL (large capital letter)

G - gravel and sand
S - sand and silt
C - silt and clay
T - till
R - bedrock

GENERIC (small capital letter)

F - glaciofluvial
L - glaciolacustrine
I - ice-contact
M - morainal

MORPHOLOGIC (lower case letter)

h - hill(s) (>50' relief)
n - knoll(s) (<50' relief)
r - ridge(s)
p - plain
v - veneer (commonly 2' to 10' thick)
k - kettles
t - terraces
d - drumlinoid
e - eroded
c - channelled

Boundaries (geologic, geologic and organic, organic) . . . . .

Drumlin or drumloid . . . . .

Esker (direction flow assumed, uncertain) . . . . .

Meltwater channel or spillway . . . . .

Escarpment or steep bank . . . . .

Helicopter landing site . . . . . 60, 37 - 71

Complex Units: A horizontal line ——— separating two units indicates a veneer unit overlying a thicker and morphologically dominant unit e.g. $\frac{CLv}{Rn}$

Composite Units: A single slash / or double slash // between two units is used to designate areas where two distinctive units (mineral or organic) occur but are mapped as one unit. The first unit indicated comprises more than 50 per cent (rough estimate) of the area; the second unit designated comprises from 25 to 50 per cent where separated by a single slash e.g. $\frac{CLv}{Rn} / CLb$ or less than 25 per cent where separated by a double slash e.g. $\frac{CLv}{Rn} // CLb$

Organic Units: Organic deposits designated as bog (1) and fen (2) cover the surficial sediments and bedrock in most of the low-lying poorly drained parts of the map-area. Bog is composed of peat material several ft. or more above the water table; permafrost commonly occurs at a depth of 1 to 4 ft. depending upon local factors (tree cover, slope, drainage, etc.). Fen is peat covered by shallow water or water covered by a floating peat blanket and permafrost is absent.